



1. A method of manufacturing a liquid crystal display device, comprising:

forming a switching element on a substrate;

forming a passivation layer over the substrate;

depositing a metal layer on the passivation layer;

forming a photoresist pattern on the metal layer, such that a portion of the metal layer is exposed;

treating the exposed portion of the metal layer with a plasma using the photoresist pattern as a mask; and

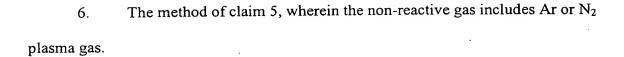
removing the treated portion of the metal layer to form a pixel electrode.

- 2. The method of claim 1, wherein the switching element is a thin film transistor.
- 3. The method of claim 1, wherein the step of treating the exposed portion of the metal layer includes,

using a reactive gas to lower a binding force in the exposed portion.

- 4. The method of claim 3, wherein the reactive gas includes H₂ plasma gas.
- 5. The method of claim 1, wherein the step of treating the exposed portion of the metal layer includes,

using a non-reactive gas to lower a binding force in the exposed portion.



- 7. The method of claim 1, wherein the step of etching the metal layer involves a dry-etching technique.
- 8. The method of claim 7, wherein the step of etching the metal layer includes,
 etching the metal layer with HBr plasma gas.
- 9. The method of claim 7, wherein the step of etching the metal layer includes,

etching the metal layer with a composition of HBr plasma gas and Cl₂ plasma gas.

10. The method of claim 7, wherein the step of etching the metal layer includes,

etching the metal layer with a composition of HBr plasma gas and CH_4 plasma gas.

11. The method of claim 1, wherein the metal layer includes one of indium tin oxide (ITO) and indium zinc oxide (IZO).



12. A method of manufacturing a pixel electrode in a liquid crystal display device, comprising:

depositing a metal layer on a passivation layer which partially covers a transistor;

forming a photoresist pattern on the metal layer, leaving a portion of the metal layer uncovered;

exposing the uncovered portion of the metal layer to a first plasma to lower a binding force in the uncovered portion; and

removing the uncovered portion of the metal layer with a second plasma to form a pixel electrode.

Sub

- 13. The method of claim 12, wherein the first plasma is a reactive gas.
- 14. The method of claim 13, wherein the reactive gas includes H₂ plasma

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gas.

- 15. The method of claim 12/wherein the first plasma is a non-reactive gas.
- 16. The method of claim 15, wherein the non-reactive gas includes Ar or N_2 plasma gas.

Subs

17. The method of claim 12, wherein the second plasma includes HBr plasma gas.

- 18. The method of claim 12, wherein the second plasma includes a composition of HBr plasma gas and Cl₂ plasma gas.
- 19. The method of claim 12, wherein the second plasma includes a composition of HBr plasma gas and CH₄ plasma gas.
- 20. The method of claim 12, wherein the metal layer includes one of indium tin oxide (ITO) and indium zinc oxide (IZO).
 - 21. The method of claim 12, further comprising: removing the photoresist pattern from the pixel electrode.

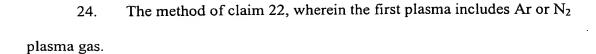
22. A method of patterning a metal layer, comprising:

depositing a metal layer over a substrate;

forming a mask on the metal layer, leaving a portion of the metal layer uncovered;

exposing the uncovered portion of the metal layer to a first plasma to lower a binding force in the uncovered portion; and removing the uncovered portion of the metal layer with a second plasma to form a metal pattern.

23. The method of claim 22, wherein the first plasma includes H_2 plasma gas.



- 25. The method of claim 22, wherein the second plasma includes HBr plasma gas.
- 26. The method of claim 22, wherein the second plasma includes a composition of HBr plasma gas and Cl₂ plasma gas.
- 27. The method of claim 22, wherein the second plasma includes a composition of HBr plasma gas and CH₄ plasma gas.
- 28. The method of claim 22, wherein the metal layer includes one of indium tin oxide (ITO) and indium zinc oxide (IZO).
- 29. The method of claim 22, wherein the metal pattern includes a pixel electrode of a display device.

